

### **REMARKS**

Reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 98 and 120 have been canceled herein without prejudice or disclaimer.

Claim 91 has been amended to recite that the printing sheet comprises a "fibrous paper web substrate, and on both sides of the substrate, an image receptive coating layer... ." The foregoing amendments to claim 91 are supported by claim 98 (coating on both sides), now canceled, and in the as-filed specification at page 21, line 8 ("substrate is a fibrous paper web").

Claims 93, 101, 102, 107, 112 and 114 have also been amended. The amendments are fully supported in the as-filed specification.

The presently pending claims are 91 – 97 and 99 – 119.

### **Rejection Under 35 USC 112, 2<sup>nd</sup> paragraph**

Claims 93 and 101 – 118 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

The term "***substantially***" has been deleted in claim 93 and the term "***approximately***" has been deleted in claims 101, 102 and 112.

In addition, appropriate Markush group terminology has been added in claims 107 and 114.

It is respectfully submitted that the claim rejections under § 112, second paragraph, have been overcome and a withdrawal is respectfully solicited.

**Rejection Under 35 USC 102(b)**

Claims 91 – 97, 99 – 101, 111, 114 stand rejected under 35 USC § 102(b) as being anticipated by Miyamoto et al. (US 4,460,637). This rejection is respectfully traversed.

The Miyamoto patent discloses an inkjet recording sheet with a particular porosity structure (see abstract and also Figs. 3-7, as well as the particular porosity distribution).

The Miyamoto reference discloses one coating layer (see figure 1) or two coating layers on one side of the substrate.

The substrate, referred to as a support in Miyamoto, can be a thermoplastic resin film or a paper (see for example column 6, lines 47 – 49). In the specific examples, a transparent thermoplastic resin film is mainly used.

As outlined above, there can be one single layer on top of the substrate or there can also be two layers. The corresponding description is to be found at column 5, line 46 extending to column 6, line 39.

None of the specific examples disclose a substrate having two coating layers.

In the context of having two coating layers, Miyamoto discloses that the top coating layer has a particular porosity with a pore radius distribution in the range of 0.2-10 micron, which is achieved by using a particulate pigment of an average size in the range of 1-50  $\mu$  (column 5, lines 46-51). This particle size average is an essential teaching of Miyamoto, as it serves to adjust the pore radius distribution in the desired range (column 6, lines 36-39).

As regards the type of particulate pigment for the top layer, no specific disclosure is provided but only a very long ***"laundry list"*** with 25 possibilities (column 5, lines 54-65), not including combinations. It is noted that no particular preference is given to any of these pigment systems in the specification. Calcium carbonate is mentioned in the list as but one of twenty-five (25) possible pigments.

With respect to the second layer, called the intermediate layer, this layer is stated to have a total pore volume of pores of 0.05  $\mu$  or below of 0.2 mL per gram (see column 6, lines 2-9). The Examiner is asked to note that no pore volume is given for the total coating layer structure, and no volume is given for the top layer.

Furthermore, Miyamoto states that a pigment shall be used for this intermediate layer having a particle size of 0.2  $\mu$  or below. Thus, the particle size of this intermediate layer is significantly smaller than the particle size of the top layer (see column 6, lines 6-9).

No teaching or indication is provided as to which type of pigment should be used for the second layer.

An important feature of the specification is to be found at column 6, lines 9-15, where it is stated that the ***second layer*** can be ***replaced*** by using, as the substrate, a ***paper sheet***.

In view of the foregoing features disclosed by Miyamoto, it clearly fails, at the least, to disclose the following features of amended independent claim 91.

- Miyamoto does not disclose the use of a paper substrate in combination with a two layer coating as recited in claim 91. By contrast, where a two layer coating is disclosed, it specifically discloses that the intermediate layer can be ***replaced*** by using a paper substrate. Thus, if a paper substrate is used, a second layer is not necessary.

Therefore Miyamoto ***teaches away*** from using a ***second layer*** as well as a ***paper substrate***.

- Miyamoto does not disclose having a ***coating layer on each side*** of the substrate. (Admitted to the Examiner.)

- Miyamoto does not disclose having a two layer coating structure on each side of the substrate. (Admitted by the Examiner.)
- Miyamoto does not disclose the use of **calcium carbonate** as the pigment for the **top layer**, since it is only mentioned in a long list -- which does not amount to a teaching--and in none of the specific examples is there disclosed a top coating layer with calcium carbonate pigment. (Applicants are of the belief that the Examiner's statement in this respect is clearly inaccurate).
- Miyamoto not only does not disclose the use of calcium carbonate for the top coating layer, but it furthermore does not disclose the use of calcium carbonate in which ***80% of the particles are smaller than 1  $\mu$*** . If in a particle size distribution 80% of the particles are smaller than 1  $\mu$ , this means that the average particle size must be significantly below 1  $\mu$ , for example in the range of 0.1-0.5  $\mu$ . Applicants simply do not know how or where the Examiner derives the value mentioned in the Office Action allegedly disclosed by Miyamoto to be 0.5  $\mu$  for the average. By contrast, the particle size according to Miyamoto is an average particle size in the range of 1-50  $\mu$  in order to establish the desired porosity structure. Therefore, Miyamoto does not disclose the claimed particle size distribution and, in fact, even teaches away from using a particle size distribution where the average particle size would be outside of the range of 1-50  $\mu$ .
- Miyamoto does not disclose the use of calcium carbonate as the pigment for the intermediate layer. There is absolutely no indication which type of pigment should be used for this intermediate layer. (See column 6, lines 2-15).
- Miyamoto does not disclose the **combination** of using calcium carbonate in the top layer as well as in the intermediate layer.
- Miyamoto does not disclose the combination of using calcium carbonate in the top layer as well as in the intermediate layer having a similar particle size

distribution, but it actually specifically stresses that the particle size distribution of the calcium carbonate in the intermediate layer must be such as to have a smaller average particle size than in the top coating layer. (See column 5, lines 49-51 and column 6, lines 6-15). Thus, Miyamoto specifically teaches that in the case of two layers, the lower layer (intermediate layer) must have a particle size distribution with a significantly smaller average particle size. Clearly, claim 91 distinguishes thereover.

- Miyamoto does not disclose the **cumulative porosity volume** in the claimed range for the total coating system, it only discloses cumulative porosity volumes for the intermediate layer.
- Miyamoto does not disclose an **offset paper** but only an inkjet paper. Offset printing is never mentioned.

Since the claims clearly distinguish over the teachings of Miyamoto by a preponderance of the evidence, the rejection under 35 USC § 102(b) should be withdrawn since a *prima facie* case of anticipation has not been established.

#### **Rejections Under 35 USC § 103(a)**

The rejection of dependent claim 116 under 35 USC § 103(a) over Miyamoto is respectfully traversed.

The § 103 (a) rejection of claims 98 and 120 over Miyamoto in view of Asaka et al. is rendered moot in view of their cancellation.

The rejection of dependent claims 102, 104, 112 and 113 under § 103(a) over Miyamoto in view of Desie et al. is respectfully traversed.

The rejection of dependent claims 105 – 107 and 109 under § 103(a) over Miyamoto and Desie in view of Le-Khac is respectfully traversed.

The rejection of dependent claims 110 and 117-119 under § 103 (a) over Miyamoto

in view of Liu is traversed.

The rejection of dependent claim 115 under § 103 (a) over Miyamoto et al. in view of Uytterhoeven is respectfully traversed.

The claimed invention clearly distinguishes and is unobvious over each of the combinations of art under § 103(a) posited by the Examiner, since one of ordinary skill in the art would have to go through at least the following selection processes:

- 1) one of ordinary skill in the art would have to select the embodiment with two coating layers on one side;
- 2) the skilled artisan would then have to select the substrate to be a fibrous paper web, in view of the fact that the use of a paper substrate is proposed as a **replacement** for the intermediate layer in Miyamoto, which is most certainly a teaching away from making such an election;
- 3) then one of ordinary skill in the art would have to select one of the particular pigments given in the extensive list in column 5, lines 54-64, in view of the examples, none of which mention calcium carbonate, thus there is absolutely no motivation to select calcium carbonate in this selection step. Furthermore there are twenty-five (25) members of possible pigments systems, so the selection must be made from a very large list which, indeed, is ***not a teaching but merely an invitation to experiment***;
- 4) one of ordinary skill in the art then would have to select not any calcium carbonate, but rather a specific calcium carbonate pigment which has a different particle size distribution than the one being used in Miyamoto and being the key or critical element thereof, i.e., a distribution which has an average value which is significantly below the lower level of 1  $\mu$  as disclosed in Miyamoto;

5) one of ordinary skill in the art would then have to select a particular pigment for the intermediate layer, despite the fact that there is absolutely no indication of a particular choice of a pigment in the intermediate layer, and there are no specific embodiments comprising an intermediate coating layer. There is not even a hint that one of the pigments listed for the top coating layer in column 5 could be used for the intermediate coating layer. In any case, there is absolutely no motivation, even assuming that the same pigments could be used as the top coating layer, to use calcium carbonate. There is no motivation to select the same pigment for the top coating layer as well as for the intermediate coating layer; and,

6) one of ordinary skill in the art would then also have to select to have such a two layer structure not only on one side, but on both sides of the substrate.

Miyamoto's disclosure does not provide any motivation to provide a coating layer on both sides. It is noted that the Examiner's allegation of having coating layers on both sides as being suggested by Asaka is not correct in the specific context of using a fibrous paper web, since Asaka is using transfer films where the substrate is transparent and not a fibrous paper web which is not transparent.

Applicants note that none of the cited prior art references disclose or suggest the specific combination of a fibrous paper web which is coated on both sides with a two layer structure having a very specific pigment composition, namely in particular comprising at least 50 parts of calcium carbonate with a particle size distribution such that more than 80% of the particles are smaller than 1  $\mu$ .

In view of the foregoing it is clear beyond doubt that the claims distinguish over the various combination of references posited by the Examiner. Since the Examiner has failed to establish *prima facie* obviousness under § 103(a) by a preponderance of the evidence, the rejection has been overcome and its withdrawal is solicited.

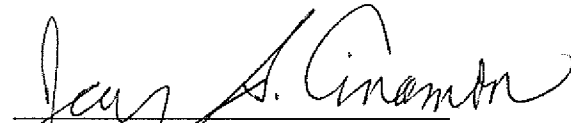
The issuance of a Notice of Allowance is respectfully solicited.

Please charge any fees which may be due to our Deposit Account 01-0035.

Respectfully submitted,

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